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Low-Reward Dishonesty Under Low-Monitoring: Evidence from a Field Experiment

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Evidence from a Field Experiment

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Abstract

The simple model of rational crime suggests that people will only break the rules when the reward is at least as great as the possible consequences of getting caught. Conversely, we know that many people cheat and lie in situations when the reward is low. This paper will survey current literature and experiments on cheating and use an original model to examine how people will act in situations with low monitoring and low reward. Participants were given simple, timed math quizzes composed of five questions that do not have a possible correct answer. After the time was up, they were asked to self report on the number of correct answers and received $1 for each question they claimed they got correct. Participants were surveyed for 12 factors to determine predispositions towards dishonesty at two shopping malls. Frequency of cheating proved to be very low, with only 15% of respondents choosing to be dishonest. Intensity of dishonesty was also low -- no participants claimed more than $2. Age, political leanings, expected average, gender, income, and race were all found to play significant or weakly significant roles in cheating. Self-confidence, education level, current religiosity, and religiosity of upbringing were not found to play a role.

Key Words: Low-reward dishonesty, Human Nature, Ethical Decision Making, Cheating, Low-Monitoring

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Introduction

We all think of ourselves as honest, rule-abiding individuals. Economists do as well. Classical economics rests upon the assumption that people are rational and follow rules given that the possible cost of being caught breaking a rule is greater than the possible benefit of breaking it. With the stringent legal, honor, and ethical codes most institutions employ, it would then follow that utility maximizing individuals would abide by the rules. We, of course, know this not to be the case. Students still cheat on tests, employees get fired for violating codes of conduct, and people break laws. So why do people go against their best interests and practice dishonesty? To some degree, the most common answer to this question is that it is human nature to be self-interested and therefore lie if we believe we can get away with it. Human nature is assumed to be this innate, immovable, biological drive. Classical economics is reliant upon the assumption of the *homo economicus:* a construct that assumes calculated self interest to be a driving force in all human actions. This assumption most likely lacks a materialist account of human nature. Human nature is not immune to political, social and psychological factors. It makes sense that many people within capitalist societies will be self-interested and rationally motivated -- there are reward-mechanisms built into the fabric of our political economy that encourage these traits. But the work done by behavioral economists such as Kahneman, Thaler, and their intellectual progeny has proven time and time again that people do not always behave rationally. This suggests that perhaps rationality and self-interest are side effects of enlightenment thought and capitalist organization, not innate characteristics that all humans possess.

Contrary to an understanding of dishonesty as a natural byproduct of rational self-interest, we will put forth an account of dishonesty based on empirical data. We have

examined many behavioral economic studies done on dishonesty to best design this experiment, and synthesized a comprehensive economic model on cheating. In this experiment, we are attempting to assess the extent of dishonesty in low-reward environments. Moreover, we want to see how characteristics such as gender, education level, age, income level, and other factors may impact a subject's likelihood to be dishonest. In order to collect this empirical data, we designed an experiment with the aim to test human dishonesty through the administration of short math quizzes. The questions in these quizzes have no correct answer, serving as the control into this experiment. Subjects were requested to self-report how many questions they answered correctly and were subsequently compensated money for each question they claimed to get correct. They were also required to fill out a survey collecting demographic information. There was no way for the subject to 'get caught' after leaving the mall -- we did not collect names or contact information. With the assumption that humans are naturally self-interested, then one would deduce that everyone will likely lie. Although there is a possibility that subjects feared being called out on their responses, we attempted to create a very low-monitoring environment in order to assuage these fears. In our experiments, we found both the frequency and intensity of cheating to be much lower than expected. This could have significant implications for both economic theory and public policy moving forward. It is hard to design any system devoid of asymmetric information problems, so instead we should focus on how to dissuade malicious use of that asymmetric information. With better understanding of what motivates people to be dishonest, we are able to better design systems to discourage dishonesty.

Literature Review

At the core of our research is the question: is it the case of a few bad apples among a society of otherwise honest people, or does everyone tend to cheat just a little bit? Traditional economic models suggest that people use a risk-reward analysis when making the decision to be dishonest (Becker, 1968). Some field experiments have attempted to gauge differences in behaviors based on the magnitude of reward and found that people are less likely to be dishonest when there is more money involved (Cohn 2019, Balasubramanian 2017), while others found no difference in behavior as monetary gain increased (Mazar et al. 2008, Farrington and Kidd, 1977). That being said, those who did not find a difference in behavior with monetary gain were still arguably operating in the low reward arena. Both aforementioned experiments had low and high reward treatments, but the 'high' reward treatments did not provide enough money to materially change someone's life. The difference between ten pence and fifty pence (Farrington and Kidd, 1977) is arguably not enough to introduce the pressure factor for many people. Cohn's experiment is probably a better gauge of high-reward dishonesty as people had the opportunity to make 100 dollars from lying, and this suggests a difference in behavior based on reward.

The type of dishonesty we have chosen to focus on is low-reward dishonesty. The way people act when the reward is low is a much better signifier of innate honesty or dishonesty than a situation in which people have a great deal to gain or lose. Criminologist Donald Cressey (1986) suggests that crimes are motivated by three elements which make up the "fraud triangle:" opportunity to commit the crime, pressure or motivation to commit the crime, and rationalization or justification of the crime. If one is to take out the element of pressure that high rewards creates, the nature of dishonesty changes at a fundamental level. Pressures at home, financial

troubles, and a desire to fit in can all be factors that drive an otherwise honest person to circumvent the rules. On the other hand, when someone lies for a very low reward, it points to a more innate tendency towards dishonesty. We will also be focusing on individual dishonesty. Conrads et al. (2013) and Muehlheuser et al. (2015) seems to suggest that dishonesty is much more pronounced when people are acting in groups. Even being around others while the experiment is being conducted has the possibility to skew results, as evidenced by Gino (2009), who found thatindividuals were more likely to cheat when itseemed as though other test takers were also cheating.

In contrast to Becker's simple model of rational crime (SMORC), others have suggested that dishonesty is innate. Mazar et al. (2008) finds that everyone cheats just a little bit and puts forth self-confidence maintenance theory. They posit that people cheat just enough to still maintain their concept of themselves as a good person. Ariely (2013) calls this same effect the 'fudge factor.' Many researchers also seemed to find that the closer people felt to unethical behavior the less likely they were to break the rules. Put more simply, people are likely to cheat unless it makes them feel like a bad person. For example, Mazar et al. (2008) found that people were less likely to cheat after having signed an honor code, Ellingsen and Johannesson (2004) found people were less likely to steal after making verbal commitments not to, and Carpenter et al. (2006) found students were more likely to cheat when others were doing so.

Fudge-factor theory suggests that no demographic differences or personal beliefs impact cheating -- the idea is that there is something innate in the human experience that drives us all to cheat just a little. Mazar et al. (2008) found all subjects to cheat similarly regardless of personal factors, and Buttars and Baumann (2012) found that political ideology did not impact a person's

tendency to be dishonest. Pascual-Ezama et al. (2015) challenges the notion that everyone is dishonest, but agrees that demographic differences have no impact. They found comparable results in all 16 countries in which the experiment was conducted. On the other hand, there seems to be an even larger body of research which suggests that personal factors will impact decisions to cheat. Many researchers have analyzed gender relationships and found that men cheat more than women (Zhang et al. 2017, Gibson et al. 2013, Friesen and Gangadharan 2012, McCabe et al. 1999, McCabe and Trevino 1997). Nelson et al. (2016) found that religious millennials are less likely to cheat than their non-religious peers, and Ariely et al. (2019) found East Germans living under socialism to be more dishonest than West Germans living under capitalism. Researchers have found that older students are less likely to cheat than their younger peers (Rawwas et al. 2004, McCabe and Trevino 1997). Neville (2012), on the other hand, suggests lower income students are more likely to cheat.

Plagiarism data has also unveiled notable trends. Data collected from UT Austin between 2003-2011 found men, African-Americans, Asian-Americans, and international students to be overrepresented in honor code violations. Between ⅓-½ of cheaters had a GPA above 3.0 (Bi, 2013). This data, while insightful, raises the question of whether these groups are the most dishonest, or if they are the only ones getting caught. There is a wealth of experimentation on academic dishonesty and research which looks at crime data, but there seems to be less research that tests factors influencing low-reward dishonesty. Crime and academic dishonesty seem somewhat rooted in the same general phenomena of dishonesty, but the other factors which motivate them make it harder to understand how much ethical failings are to blame. Low-reward dishonesty is the most indicative of poor ethical decision-making. It deserves more attention

from researchers, particularly when it comes to understanding the demographic patterns that arise in crime and academic dishonesty.

It is also important to note differences in how many of these field experiments are conducted. The vast majority of empirical research on this topic comes from experiments conducted in a university laboratory setting. Laboratory evidence can be skewed by a number of factors. While there is no such thing as a perfectly reliable sample, cheating in university populations is not entirely applicable to the general population. Abeler et al. (2015) examined the self-selection of university students in laboratory experiments and found that students tend to be younger, wealthier, and more competitive. Another way that experiments on cheating can be skewed is through the Hawthorne effect. It becomes much easier for subjects to realize that their honesty is being put to the test in situations where the information that subjects are being asked to report is very easily attainable (i.e. a coin flip) (Pascual-Ezama et al. 2015) or in situations where people are being asked to sign honor codes or shred exams (Mazar et al. 2008).

Currently, the literature seems to lack studies that analyze cheating with a built-in control. Mazar et al. (2008) and Friesen and Gangadharan (2012) employed similar experimental designs to ours, but they use separate control groups. Since the questions on the tests they give are answerable, they do not account for the possibility of the self reporting group simply having a higher average than the control group. They found that in situations where subjects have the possibility to self report their own grades on tests, the test averages go up. Perhaps they are prematurely making the assumption that the observed difference in averages comes from cheating. Any educator who has taught multiple sections knows how much scores can vary between sections. Although the content of the test and the instructor can be the exact same, the

people that make up each section are ultimately what determine the varying averages. Even if researchers use the exact same group for the control and the self-reporting scenario, they fail to account for the possibility that people may learn over time as they continue to do the same test. The research of this paper challenges the 'fudge factor' theory which Mazar et al. (2008) and Ariely (2013) postulate. It suggests that dishonesty is not a product of human nature, but rather is informed by demographic and cultural differences.

Methodology

We have designed an experiment meant to test dishonesty in the general population. A novel way to design this experiment is to give quizzes solely composed of questions that have no correct answers to them. Our hope was that by doing this, the control of the experiment would be built into the quiz itself. As previously mentioned, with past experimenters who employed similar models, there is questionable reliability in the answers since they administered tests which could be answered correctly. Both selection bias between sections and the possibility of improvement over time, prove to be confounding variables when it comes time to compare the averages of control groups with the averages of groups who self-reported. Friesen and Gangadharan (2012) attempted to control for this effect by giving quizzes which had only some answerable questions. While this increases the probability that the effects they observed were due to cheating, the data still seems to contain some of the same flaws of the design of Mazar et al. (2008). By administering tests that have no correct answers, we will know that if a person reports that they got two questions right, that person was indeed dishonest about two questions. If the tests had answerable questions, then we would not be able to say for sure whether the person *actually* got two correct answers or whether the person was indeed lying. We would need to use a control group that is being graded and subsequently compare the averages. By employing this design, we circumvent the need for a separate control group.

Our sample consisted of 199 people in total, ranging from the ages of 13 to 65. Experimental sessions were run at the WestFarms Mall in West Hartford, Connecticut and at the Buckland Hills Mall in Manchester, Connecticut. An important feature of this methodology that distinguishes it from others within the field is the varied population in which it was conducted.

Many of the previously discussed experiments were conducted on college campuses or in labs. This experiment was conducted in busy malls, on weekends, in an attempt to capture a more varied sample. The location also decreased some of the incentives for dishonesty that arise in many group situations. As documented by Gino (2009), the behaviors of other test takers in the same room as an individual can impact dishonesty. By setting up this experiment in a public place, we designed it so that participants did not all have to take their tests at the same time and in the same space. This creates less opportunity for group influencing. Couples, families, and other groups were allowed to take tests at the same time, but they were given different versions and instructed to work alone. Any groups in which we perceived a sense of competitiveness were excluded from the study results. Conducting the experiment in the mall, on weekend days, also decreased some of the incentive to lie. No one had signed up for a focus group and taken time out of their day to approach us for the possibility of winning cash prizes. For the most part, our respondents were mall-goers who had a few minutes to spare but were ultimately eager to get back to their days, not competitive test takers eager to win money. We even found that some subjects agreed to take the test but mentioned that they were not interested in the cash prize before they started the test. This supports our claim that the realized effects were spurred by *low-reward* dishonesty.

The test we administered consisted of 5 math questions. Our goal was to design questions that were hard enough to disguise the lack of a correct answer, yet easy enough for participants to know they were not getting questions correct. Participants were compensated one dollar for each question they claimed to get correct. We used matrices, similar to Mazar et al. (2008) and Friesen and Gangadharan (2012), but made the numbers more complex. Instead of finding

numbers that added up to 10, participants were asked to find numbers that added up to larger numbers. We also varied the type of question in hopes of making it more difficult for participants to realize a pattern and catch on to the insolvability. Two versions of the quiz were created to discourage cooperation and answer sharing. Version A is shown below (see index for version B):

Try to answer as many as possible in the allotted time, do not get stuck on any one question.

1) Use any of these numbers and '+' operation to get "536". You can use each number only once.

101	103	109
104	107	105
108	102	106

Did you find the solution? Yes/No

2) Use any of these numbers and '+' operation to get "413". You can use each number only once.

101	81	51
121	41	91
61	111	71

Did you find the solution? Yes/No

3) Find 3 different whole numbers a, b, and c such that $a^3 + b^3 = c^3$

Did you find the solution? Yes/No

4) Find two whole numbers that add up to 200, and multiplied together equal 2550.

Did you find the solution? Yes/No

5) Use any of these numbers and '+' operation to get "52". You can use each number only once.

42	16	7
21	12	32
19	6	18

Did you find the solution? Yes/No

Participants were given 5 minutes to complete the math portion of the quiz. The less time participants had with the quiz, the less probability they had of realizing the insolvability of the model. All participants that figured it out and verbally communicated that to us were removed from the results. All individuals that were within the direct vicinity of a participant that was discussing the insolvability of the questions were also removed. Participants were not given any sort of answer key and did not have their tests graded.

Covey et al. (1989) posit that increased surveillance will decrease dishonesty and their theory has been widely tested and supported by empirical evidence. Introducing an answer key or a separate table at which participants are graded would increase the feeling of control and surveillance, and likely stifle any potential dishonesty. We did grapple with the possibility of receiving what we will call a false positive: people who genuinely believed they were getting

questions correct even though they were not. We took a couple measures to mitigate for this scenario. First, we chose to use math questions that could be easily checked using mental math, and participants who asked to use calculators were provided with them (although very few people requested them). We also asked under each question whether or not participants had found a solution. This element was meant to help us catch people who may not know they were getting questions incorrect. If people had worked on their paper, had come to an answer, and had denoted under the question that, yes, they found a solution, it might suggest that they had not realized they were getting the questions wrong. The time factor was also an attempt at mitigating false positives. Respondents had such a short amount of time to answer the questions that the probability of people earnestly attempting and falsely 'solving' a great deal of questions was fairly low. Looking over the tests, we found that people were able to attempt a maximum of three questions in the alloted time, and the majority of people only attempted one or two.

The survey we created tested for 12 different factors: expected results of men, expected results of women, gender, age, highest level of education, fiscal conservativeness, social conservativeness, religiousness of upbringing, religiosity now, self confidence, income level, and race. We also included three filler questions pertaining to schooling in order to make participants believe we were studying education. These factors were decided upon partially through our own suspicions of what could be influencing dishonesty, and partially in an attempt to build upon existing literature. The low, middle, and high income brackets were created using Connecticut household income data collected from the 2017 census. A household making below $50,000 a year in Connecticut is in the bottom 40% of income, households making $50,000-$150,000 a

year are above the 40th and below the 80th percentile, while households making above $150,000 account for the top 20%.

When administering the tests, a strict script was followed in order to keep information constant. Mall goers were asked if they would be willing to help us with our research for the opportunity to win money. We stressed it would only take ten minutes, and that we would not need any identifying information. Once people agreed to do it, they were told they had five minutes to complete the quiz, that no cooperation was allowed, and that they would be given a dollar for each question they got correct. When people inquired what the research was about, we told them it was focused on "education." If people continued to ask questions, they were told we were research assistants who did not design the quizzes and did not know the answers. When people were done filling out the quiz portion and the surveys, we asked them, "How much money do we owe you?" This question was chosen specifically so as not to mention how many answers they got right or wrong and rather focus on how much money they felt entitled to. We attempted to design our script to offer respondents as little information as possible and downplay our own authority and knowledge, which was meant to mitigate the Hawthorne effect. We also hoped to quell any anxieties respondents might have about being called out on cheating by feigning our own ignorance of the 'correct' answers. Respondents were then given as much cash as they claimed, no questions asked, and their sheets were collected in a box. Some respondents volunteered to not take the money even before they began the experiment.

Results

Out of 199 respondents, we had 27 people claim money and 169 claim no money. That is a roughly 15.97% rate of cheating. Only 3 of those 27 people claimed $2, and the remaining 24 claimed $1. Not only is the rate of cheaters much lower than expected, the magnitude of cheating is quite low.

1. Expected Results for Male Respondents:

	Solved Correctly	N	Mean	Std. Deviation	Std. Error Mean
Average Men Solved	Honest	169	1.66	1.128	.087
	Cheater	27	2.44	1.155	.222

				t-test for Equality of Means		
				t	df	Sig. (2-tailed)
AverageMenSolved	Equal variances assumed	0.002	0.968	-3.333	194	0.001
	Equal variances not assumed			-3.277	34.409	0.002

On average, men were expected to solve 2.44 problems on the quiz by the cheaters and 1.66 by non-cheaters, and this difference is statistically significant (p=0.001). Cheaters expected men to do better on the quiz than non-cheaters.

2. Expected Results for Female Respondents:

	Solved Correctly	N	Mean	Std. Deviation	Std. Error Mean
Average Women Solved	Honest	169	1.83	1.232	.095
	Cheater	27	2.56	1.368	.263

				t-test for Equality of Means		
				t	df	Sig. (2-tailed)
Average Women Solved	Equal variances assumed	1.282	0.259	-2.782	194	0.006
	Equal variances not assumed			-2.577	33.083	0.015

				t-test for Equality of Means		
				t	df	Sig. (2-tailed)
AverageMenSolved	Equal variances assumed	0.002	0.968	-3.333	194	0.001
	Equal variances not assumed			-3.277	34.409	0.002

On average, women were expected to solve 2.66 problems on the quiz by the cheaters and 1.83 by non-cheaters, and this difference is statistically significant (p=0.006). Cheaters expected women to do better on the quiz than non-cheaters.

3. Age:

	SolvedCorrectly	N	Mean	Std. Deviation	Std. Error Mean
Age	Honest	169	31.78	14.577	1.121
	Cheater	27	26.04	10.185	1.960

				t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Age	Equal variances assumed	15.147	0.000	1.970	194	0.050	5.744	2.916	-0.006	11.494
	Equal variances not assumed			2.544	45.055	**0.014**	5.744	2.258	1.196	10.292

Cheaters are younger than non-cheaters. The average age of a cheater is 26.04. The average age of a non-cheater is 31.78, and this difference is statistically significant (p=0.014).

4. Fiscal Conservativeness:

	Solved Correctly	N	Mean	Std. Deviation	Std. Error Mean
Fiscally Conservative	Honest	169	5.47	2.053	.158
	Cheater	27	6.37	1.690	.325

				t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Fiscally Conserv	Equal variances assumed	1.315	0.253	-2.169	194	0.031	-0.903	0.416	-1.724	-0.082
	Equal variances not assumed			-2.497	39.359	0.017	-0.903	0.362	-1.634	-0.172

On a 1-10 Likert scale (1 being least fiscally conservative and 10 being most fiscally conservative) cheaters rated themselves higher (6.37) than non-cheaters (5.47) and this difference is statistically significant (p=0.031). Cheaters are more fiscally conservative than non-cheaters.

5. Social Conservativeness:

	Solved Correctly	N	Mean	Std. Deviation	Std. Error Mean
Socially Conservative	Honest	169	4.72	2.428	.187
	Cheater	27	5.93	2.147	.413

				t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Socially Conservative	Equal variances assumed	0.171	0.680	-2.440	194	**0.016**	-1.210	0.496	-2.188	-0.232
	Equal variances not assumed			-2.668	37.467	0.011	-1.210	0.453	-2.128	-0.292

On a 1-10 Likert scale (1 being least socially conservative and 10 being most socially conservative) cheaters rated themselves higher (5.93) than non-cheaters (4.72), and this difference is statistically significant (p=0.016). Cheaters are more socially conservative than non-cheaters.

6. Religiousness of Upbringing:

	Solved Correctly	N	Mean	Std. Deviation	Std. Error Mean
Religious Upbringing	Honest	169	5.66	2.907	.224
	Cheater	27	5.33	2.386	.459

				t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Religious Upbring	Equal variances assumed	2.324	0.129	0.559	194	**0.577**	0.329	0.589	-0.833	1.491
	Equal variances not assumed			0.645	39.453	0.523	0.329	0.511	-0.703	1.362

The relationship between religiousness of upbringing and cheating is not statistically significant (p=0.577).

7. Religiosity now:

	Solved Correctly	N	Mean	Std. Deviation	Std. Error Mean
Religious Now	Honest	169	4.03	2.548	.196
	Cheater	27	4.41	2.024	.390

				t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Religious Now	Equal variances assumed	3.288	0.071	-0.734	194	0.464	-0.378	0.515	-1.393	0.638
	Equal variances not assumed			-0.866	40.433	0.391	-0.378	0.436	-1.259	0.503

The relationship between current religiosity and cheating is not statistically significant (p=0.464).

8. Self-Confidence:

	Solved Correctly	N	Mean	Std. Deviation	Std. Error Mean
Confidence	Honest	169	7.39	1.376	.106
	Cheater	27	7.67	1.359	.261

				t-test for Equality of Means						
				t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Confidence	Equal variances assumed	0.103	0.748	-0.970	194	**0.333**	-0.276	0.285	-0.838	0.285
	Equal variances not assumed			-0.979	35.077	0.334	-0.276	0.282	-0.849	0.297

The relationship between self-confidence and cheating is not statistically significant (p=0.333).

9. Location:

Location * SolvedCorrectly Crosstabulation

			Solved Correctly		
			Honest	Cheater	Total
Location	West Farms	Count	56	14	70
		Expected Count	59.4	10.6	70.0
		Adjusted Residual	-1.4	1.4	
	Buckland Hills	Count	113	16	129
		Expected Count	109.6	19.4	129.0
		Adjusted Residual	1.4	-1.4	
	Total	Count	169	30	199
		Expected Count	169.0	30.0	199.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.046[a]	1	.153		
Continuity Correction[b]	1.495	1	.221		
Likelihood Ratio	1.982	1	.159		
Fisher's Exact Test				.212	.112
Linear-by-Linear Association	2.035	1	.154		
N of Valid Cases	199				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.55.

b. Computed only for a 2x2 table

The relationship between location and cheating was not significant. $\chi 2$ (4, N=199)=2.046, p=0.153

10. Gender:

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.555[a]	1	.010		
Continuity Correction[b]	5.576	1	.018		
Likelihood Ratio	6.582	1	.010		
Fisher's Exact Test				.016	.009
Linear-by-Linear Association	6.522	1	.011		
N of Valid Cases	199				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.57.

b. Computed only for a 2x2 table

Gender * SolvedCorrectly Crosstabulation

			SolvedCorrectly		
			Honest	Cheater	Total
Gender	Female	Count	99	10	109
		Expected Count	92.6	16.4	109.0
		Adjusted Residual	2.6	-2.6	
	Male	Count	70	20	90
		Expected Count	76.4	13.6	90.0
		Adjusted Residual	-2.6	2.6	
Total		Count	169	30	199
		Expected Count	169.0	30.0	199.0

The relationship between gender and cheating was significant. $\chi 2$ (4, N=199)=6.555, p=0.010.

Women are more likely to be honest than men.

11. Education Level:

EducationLevel * SolvedCorrectly Crosstabulation

			SolvedCorrectly		
			Honest	Cheater	Total
EducationLevel	NoHighSchool	Count	33	5	38
		Expected Count	32.3	5.7	38.0
		Adjusted Residual	.4	-.4	
	HighSchool	Count	51	6	57
		Expected Count	48.4	8.6	57.0
		Adjusted Residual	1.1	-1.1	
	Associate	Count	28	9	37
		Expected Count	31.4	5.6	37.0
		Adjusted Residual	-1.7	1.7	
	Bachelor	Count	42	6	48
		Expected Count	40.8	7.2	48.0
		Adjusted Residual	.6	-.6	
	PostGraduate	Count	15	4	19
		Expected Count	16.1	2.9	19.0
		Adjusted Residual	-.8	.8	
Total		Count	169	30	199
		Expected Count	169.0	30.0	199.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.282[a]	4	.369
Likelihood Ratio	4.023	4	.403
Linear-by-Linear Association	.624	1	.429
N of Valid Cases	199		

a. 1 cells (10.0%) have expected count less than 5. The minimum expected count is 2.86.

The relationship between educational level and cheating was not significant. $\chi 2$ (4, N=199)=4.282, p=0.369.

12. Household Income Level:

IncomeLevel * SolvedCorrectly Crosstabulation

			SolvedCorrectly		
			Honest	Cheater	Total
IncomeLevel	Low	Count	45	4	49
		Expected Count	41.6	7.4	49.0
		Adjusted Residual	1.6	-1.6	
	Middle	Count	81	13	94
		Expected Count	79.8	14.2	94.0
		Adjusted Residual	.5	-.5	
	High	Count	43	13	56
		Expected Count	47.6	8.4	56.0
		Adjusted Residual	-2.0	2.0	
Total		Count	169	30	199
		Expected Count	169.0	30.0	199.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.840[a]	2	.089
Likelihood Ratio	4.812	2	.090
Linear-by-Linear Association	4.683	1	.030
N of Valid Cases	199		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.39.

The relationship between income level and cheating was weakly significant. $\chi 2$ (2, N=199)=4.840, p=0.089. Post hoc tests reveal that there are more cheaters than non-cheaters in the high-income group.

13. Race:

Race * SolvedCorrectly Crosstabulation

			SolvedCorrectly		
			Honest	Cheater	Total
Race	White	Count	68	20	88
		Expected Count	74.7	13.3	88.0
		Adjusted Residual	-2.7	2.7	
	Black	Count	34	4	38
		Expected Count	32.3	5.7	38.0
		Adjusted Residual	.9	-.9	
	Asian	Count	24	3	27
		Expected Count	22.9	4.1	27.0
		Adjusted Residual	.6	-.6	
	Hispanic	Count	33	2	35
		Expected Count	29.7	5.3	35.0
		Adjusted Residual	1.7	-1.7	
	Mixed	Count	10	1	11
		Expected Count	9.3	1.7	11.0
		Adjusted Residual	.6	-.6	
Total		Count	169	30	199
		Expected Count	169.0	30.0	199.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.674[a]	4	.104
Likelihood Ratio	7.984	4	.092
Linear-by-Linear Association	6.006	1	.014
N of Valid Cases	199		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.66.

Observed Frequencies			
	Honest	***Cheater***	
white	68	20	88
non-white	101	10	111
	169	30	199

Expected Frequencies			
	Honest	**Cheater**	
white	74.73	13.27	88
non-white	94.27	16.73	111
	169	30	199

Due to the fact we did not have a lot of cheating minorities when separated out by different races, we combined all minorities into the 'non-white' group. The relationship between race and cheating was very significant. $\chi 2$ (1, N=199)= 7.215, p=.0072. Whites are more dishonest than non-whites.

14. Money Taken:

MoneyTaken * SolvedCorrectly Crosstabulation

			SolvedCorrectly		
			Honest	Cheater	Total
MoneyTaken	Taken	Count	160	26	186
		Expected Count	158.0	28.0	186.0
		Adjusted Residual	1.6	-1.6	
	Refused	Count	9	4	13
		Expected Count	11.0	2.0	13.0
		Adjusted Residual	-1.6	1.6	
Total		Count	169	30	199
		Expected Count	169.0	30.0	199.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.676[a]	1	.102		
Continuity Correction[b]	1.525	1	.217		
Likelihood Ratio	2.208	1	.137		
Fisher's Exact Test				.113	.113
Linear-by-Linear Association	2.662	1	.103		
N of Valid Cases	199				

a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.96.

b. Computed only for a 2x2 table

The relationship between refusing to take money and cheating was not significant. $\chi 2$ (4, N=199)=2.676, p=0.102.

Discussion

The fudge factor approach would suggest that a majority of respondents would claim $1 or $2. It also suggests that none of the factors we surveyed would have a significant impact on cheating. Our research found that only about 15% of people engaged in any level of dishonesty, and cheaters claimed an average of $1.1 in monetary reward. The prevalence of honesty among our sample suggests that perhaps human nature is much more motivated by ethics than we tend to give it credit for. Our results are very similar to those of Pascual-Ezama et al. (2015) who found that only 14% of participants lied across three different countries. While humans surely engage in cost-benefit analysis when making decisions, it seems to be largely overestimated as the driving force behind human decision-making. Moreover, there seem to be a great deal of factors which have an impact upon dishonesty. This suggests that one's capacity for ethical decision-making is dependent on empathy and social awareness.

Both expected male average and expected female average were correlated with cheating. Cheaters may have realized the quizzes were hard, but lied about the suspected average because they wanted to hide their dishonesty by making it seem as though they genuinely believed the tests were doable. Cheaters also could have realized the quizzes were hard, but because they had already rationalized the decision to cheat they are more likely to think others will cheat as well. They believe themselves to be making the right decision by taking the free money, therefore they are more likely to assume others are making this decision. This would confirm the findings of Gino (2009), which suggest people are more likely to cheat if they think others are doing so.

They also could have genuinely believed the averages were higher, and cheated because they did not want to feel like they had below average intelligence.

We found that younger people were more likely to cheat. This confirms that the findings of McCabe and Trevino (1997) and Rawwas et. al. (2004), who found older students less likely to cheat than younger students also held true among non-students. This effect could be due to young adults having the highest sense of individualism. Nathanson et. al. (2006) suggests that young people with higher levels of psychopathy/individualism are more likely to be dishonest. As a whole, younger people are arguably the most individualistic by nature of their place in life. Many young adults and teens are in the process of developing their individual identities. The teenage years are when many develop a new sense of autonomy, and the 20-30 years allow people to further expand this autonomy. The rules familial authority figures put in place to guide ethical decision-making are relaxed around this time in life. For some, this could be a period of time in which they still have not yet developed a desire to do the right thing without other people guiding their decisions. On the other hand, those in the 30+ age groups have likely been on their own long enough to start self-policing their ethical decisions. Older people are also more likely to have children, which some might argue instills a greater sense of moral duty in a person.

Fiscally and socially conservative people were found to be more likely to cheat than their liberal counterparts. Our data on fiscal conservativeness proves to be an important finding in the context of the research put forth by Ariely et. al. (2019), which suggests people living under socialism are more dishonest. One of the questions which follows from those findings is: does a personal belief in leftist economic policies breed dishonesty, or was it the structure of the East German society which gave rise to this trend? The bootstrap model which is popular among

Republicans suggests that those with more belief in unfettered capitalism are also those who work the hardest for their money. This data suggests that those with the most faith in classical capitalism were also the most dishonest. The *homo economicu*s approach was to claim the free money given that the risk of facing repercussions was presented as little to none. It seems to follow that those with personal beliefs which are more in line with the *homo economicus* approach would be more likely to claim the money. Both the findings on fiscal and social conservativeness prove pertinent to the research of Buttars and Baumann (2012), who found no significance in personal political ideology. Our research suggests that political ideology does seem to be tied to one's ethical decision-making, and that a belief in leftist politics correlates to better ethical decision-making.

Neither religiousness of upbringing nor religiosity now seemed to have an impact on cheating. This data challenges the findings of Nelson et. al. (2016) and Rawwas et. al. (2014) which suggests that less religious people are more likely to cheat. Although religion can be a powerful tool in teaching ethics, there does not seem to be an indication in our research that religion is the best way to develop a strong moral compass. Self-confidence also seemed to have no impact on cheating. This is interesting in the context of Nathanson et. al. (2006) which posits psychopathy as an indicator of cheating, as psychopaths tend to have very high self-esteem. It suggests that perhaps it is the character trait of individualism in psychopaths which impacts cheating rather than the self-esteem factor.

This research supports the large body of work that suggests women cheat less than men (Zhang et. al. 2017, Gibson et. al. 2013, Friesen and Gangadharan 2012, McCabe et. al. 1999, McCabe and Trevino 1997). In light of our other results, perhaps the fact that women tend to be

socialized to be more community-minded and empathetic than men makes them more honest. The 2019 World Happiness Report found Finland, Denmark, Norway and Iceland to be the top four happiest countries in the world. Beyond being in the same region, what these countries have in common is that they are run by women. One might naturally ask why it is that countries which elect female heads of state seem to be doing so well. It could be argued that this prosperity stems from a societal belief in equality, and the fact that these countries elect women suggests they value equality. But Sweden, a country which is very similar in ethnic makeup and cultural practices, seems to lag behind its neighbors with female heads of state. Surely the success of the Nordic countries is influenced by a number of factors (Sweden is still relatively high up on the index at #7), but having a female head of state seems to be at least partially impactful on the success of governance.

Additionally, as of April 2020, the countries which managed the COVID19 crisis best seem to be mostly led by women (e.g. Germany, Taiwan, New Zealand, Iceland, Finland, Norway and Denmark) (Wittenberg-Cox, 2020). The data on female heads of state is unfortunately limited, but there are studies which suggest female governance also has a positive impact in the corporate world (Francoeur et. al. 2008). Perhaps in light of our findings, the success of female leaders has in part to do with the fact women seem to have stronger ethical codes. The characteristics associated with honesty -- such as empathy and community-mindedness -- are important traits for power-brokers to possess. Our research also seems to suggest that the data put out by UT Austin does seem to accurately capture men's ethical behaviors (i.e. men are not overrepresented in cheating statistics just because they are getting caught more.)

Education level was found to have no effect on cheating. These findings complement the research of Groot and Van den Brink (2007), who found that higher educated people are less likely to commit petty crimes. Our research suggests that perhaps all education groups seem to have similar capacities for ethical decision-making. Especially given the fact that they also found well-educated people to be more likely to commit tax fraud, the higher rate of petty crimes in less educated people seems to stem more from economic disparity. All educational levels seemed to be prone to crime, just different kinds of crime based on their education level. Our findings indicate that the same could be the case for non-criminal dishonesty.

High-income subjects were found to be more dishonest than expected. In the United States, there seems to be a clear indication that poverty makes one more likely to end up in jail. Poor people are incarcerated at jarringly high rates: the median income of incarcerated people in 2014 was $19,185 prior to their incarceration, which is 41% less than non-incarcerated people of similar ages (Rabuy and Kopf, 2015). The question then follows: if wealthy people are more likely to be dishonest, why are they so much less likely to go to jail? A part of this comes from the fact that wealthy people are better able to afford skilled legal counsel. But, even if one were to control for the fact that lower income brackets have less resources to navigate the legal system, lower income brackets seem to be committing more crimes (Patterson 1991). If high income people may be lying more in low-reward scenarios, why does that trend seem to go away when looking at criminal dishonesty? Are poor people committing more crimes because they are more dishonest or because they need to survive? Our research suggests that being poor and middle class actually has no effect on one's tendency towards non-criminal dishonesty. High-income people were the only group with a high cheater count. This is perhaps due to the

fact that getting wealthy often involves a certain degree of individualism and ruthlessness. Those that build their own wealth may do so through an abdication of ethics that is celebrated in capitalist organization. CEOs that make the most money, such as Jeff Bezos or the Walton family, often do so at the cost of treating their employees humanely and preserving the environment. Additionally, those that are born into wealth may be taught that same individualism by their families.

White people were found to be more dishonest than non-whites. This proves to be particularly pertinent in regards to crime data. In 2017, blacks represented 12% of the U.S. adult population but 33% of the sentenced prison population. Whites accounted for 64% of adults but 30% of prisoners. And while Hispanics represented 16% of the adult population, they accounted for 23% of inmates. (Pew Research Center, 2019) This overrepresentation of black people in the prison population could suggest that black people are inherently more dishonest. The overrepresentation of African-American students and Asian students in the cheating cases from UT Austin could suggest the same. Our research finds that these groups were actually *more* honest than whites. This suggests that these trends come from the fact that non-whites are punished at much higher rates. The tendency of whites to cheat more may stem from the fact that they seem to be at a lower risk of facing punitive judgements. With less fear of the risks of being dishonest, the frequency of dishonesty among whites may increase; and vice versa for non-whites. Non-whites are given much fewer chances when they are caught being dishonest, which may cause them to work harder at following rules. This trend may spill over even in low-monitoring situations such as the one we created because a tendency towards honesty, like all ethical practices, is founded in habituation.

Lastly, although refusing money had no significant impact on cheating, it is notable that some cheaters refused money. The prevalence of no-reward dishonesty was even lower than low-reward -- only 4 out of 199 participants fell in this bracket. While the difference of $1 and $0 is not massive for most, it was surprising that some people would offer to help for no reward and still lie. In their cases, we can be positive that their motivation to lie had nothing to do with how much they may want the money. No-reward dishonesty indicates an even stronger level of innate dishonesty.

Questions For Future Research:

One question that seemed to be continually relevant in examining our results was the role that certain personality traits played in dishonesty. When we look at the groups which were more prone towards dishonesty: younger people, more conservative people, men, and white people, the question arises of what might link these groups. While they were not more likely to cheat, higher-income people also had more cheaters than non-cheaters. There is a possibility that what could be a common factor here is a sense of individualism or a lack of empathetic thinking. Because we were testing subjects in the mall and attempting to limit the amount of time we took from them, we could not give comprehensive personality tests. It could be very valuable to also give an assessment which measures for empathy, and measure that against their ability to cheat and their demographic profile. For example, does the tendency to cheat in men go away when those men score high on the empathy scale? Furthermore, measuring for self-confidence could also be done more robustly. It is hard to get a sense of someone's self-confidence just by asking them to rate themselves on a scale from 1 to 10. Perhaps if this is measured in the form of a personality test it will prove to be a significant result. This could be particularly interesting in regards to the findings of Nathanson et. al. (2006) in order to examine which psychopathic personality trait seems to be at play in cheating: individualism or high self-esteem?

Another topic which deserves further examination is the role of different religions in dishonesty. We only surveyed for strength of religiosity, but perhaps there could be significance in types of religiosity. Are people who believe in religions that have conceptions of hell more honest than others? Also, because our data collection was unfortunately cut somewhat short due

to the COVID19 crisis, we lacked the breadth of data to do some factor analysis which could have been quite insightful. For example, education and income are two factors which are highly linked. It could be insightful to look at how closely correlated higher education was to income in our sample. Did education have no effect because our highly educated respondents were not necessarily high income? Also, were the race results realized because there was a correlation between race and being low to middle income? Do the effects of race go away when you look at people within the same income group? To our knowledge, there has not been much research conducted about the effect of race on non-criminal dishonesty. This is a topic that deserves further examination, especially in conjunction with the existing research on criminal dishonesty. People of color suffer unproportionally high incarceration. Examining racial differences in dishonesty at a more basic level may help alleviate harmful stereotypes which contribute to this overrepresentation.

The effects of upbringing also deserve to be studied more in-depth. The purpose of our religiousness of upbringing question was to gauge the role of strictness in rearing. Our thinking was that more religious parents may enforce a stronger code of conduct in their children. This result did not end up being significant, but perhaps a better way to gauge for strictness can be pinpointed. Young adults also may have been oscillating between reporting their own income and reporting that of their parents. A college student with a part-time job may have reported themselves as low-income based on their own salary regardless of the fact they are still receiving financial support from home. Future researchers could ask for both personal income and familial income. This would both help understand the income of the 20-30 age group better, and help us look at whether a wealthy upbringing has an impact on dishonesty.

The greater Hartford area which we conducted our experiments in has a large degree of non-white immigrants. Perhaps there is something about the immigrant ethos which makes them more honest? Separating out first- and second-generation Americans could be very insightful when it comes to the role of culture and strictness of upbringing. America is arguably the most hyper-individualistic country in the world; if individualism impacts honesty, being reared in a highly individualistic culture could make one more prone to being dishonest. By doing this, one could compare how a person reared in America with the strong influence of another country's culture in their life compared to a person born here into a culturally American family. Also, because many people of color in Hartford are also immigrants, it could be interesting to compare race to culture roots. Does the race effect go away when you are looking only at people who have been here for more than two generations? This could also be done in multiple countries if one wanted to compare one homogenous culture to another. Immigrants may also have a stronger sense of fear around punitive actions -- they could be coming from countries in which breaking rules involves more risks, or they could be afraid to break the rules here and get sent back home. Does fear of punitive actions in immigrants or people of color inspire a higher degree of honesty in low-monitoring situations?

While we attempted to mitigate the sense that one would receive any punitive action for lying, we have no way to guarantee that some of our respondents were not at least somewhat motivated by fear of getting caught. If future researchers could find a way to build upon this design in a way to entirely wipe out fear of getting caught it would be interesting to see whether cheating levels stayed the same. Were honest people being honest because they believed this to be the right thing to do, or were they afraid of being called out? It also may be valuable to use

this same model to solely survey people under 30. There has been research done which finds younger students to be less honest than older students (Rawwas et al. 2004, McCabe and Trevino 1997). These studies were mostly done on people under 30, while ours included a much wider age range. It might be insightful to look at a smaller age group in order to understand if the trend in academic dishonesty can also be applied to non-academic dishonesty.

Although our findings affirm that of Pascual-Ezama et al. (2015), they stand in contrast with the majority of literature on the topic of cheating. A large majority of our subjects chose to be honest. It would be quite pertinent to investigate why this is the case, especially in comparison to research like Mazar et al. (2008). Did our research yield similar results to Pascual-Ezama et al. (2015) because we offered so little reward? Another possibility for future research would be to increase the amount of money that is being offered. We can confidently call our scenario low-reward (for the vast majority of the American populus) because the most people could stand to gain was five dollars. Cohn et al. 2019 suggests dishonesty will decrease as the money at stake increases, but Cohn's experiment centers around a different kind of honesty, since returning a lost wallet can feel like a civic duty. They may be less hesitant to take money in our scenario because it may feel more like cheating an institution rather than a singular person. In our case, we kept the incentive to cheat low because we wanted to capture base dishonesty, but it would be interesting to see how results changed as rewards started to rise. Would a $2 or $5 per question reward change behavior? At what level does low-reward dishonesty turn into high-reward?

Although we allowed groups to participate, we did not mark down who was in groups and who was solo. We removed from the results any obvious cases of competition (i.e. when groups verbalized a desire to outscore each other), but we cannot say for sure that competition

played no role. Future researchers can separate out the two in order to compare the possible impacts of group behavior. Is someone more or less likely to be honest when a group member claims money? Are groups, on average, more likely than individuals to be honest because their friends or family are watching their behavior? Are groups more likely to cheat because they feel like they are in competition with their group? They can also analyze the difference in types of groups. Is a family more likely to be honest than a group of friends? Is a parent more likely to be honest when their children are younger? The influences of group behaviors on this model deserve further consideration.

Conclusion

In this study, we have attempted to capture the prevalence of low-reward dishonesty in low-monitoring situations and examine it's possible causes. We were motivated to examine the claim by Mazar et al. (2008) that humans are inherently dishonest. We modified their experimental design by building a control into our quiz, as well as sampling in shopping malls rather than university campuses. Our results suggest that a majority of people are honest, with only 15% of people claiming any money at all, and no one claiming more than $2. Furthermore, being younger, more politically conservative, male, high-income, or white increased the probability of cheating. Respondents who suspected the average score to be higher were also at higher risk of cheating. Education level, current religiosity, religiosity of upbringing, and self-confidence all proved to be insignificant factors. Many of the groups which were more likely to be honest are underrepresented in positions of power. Our findings provide a possible argument for the importance of diversity programs. They also provide a basis for the denouncement of harmful racial and cultural stereotypes. While the entirely self-interested person operates more on risk-reward analysis, our respondents seemed to be more influenced by ethical and social factors. A person's attitudes towards low-reward dishonesty is a good gauge of their basic capacity for ethical decision-making. Our results may prove enlightening to compare to academic, financial, and criminal dishonesty and understand how much of that can be accounted for by base dishonesty.

Index

Math Quiz Version B:

Try to answer as many as possible in the allotted time, do not get stuck on any one question.

1) Find two whole numbers that add up to 100, and multiplied together equal 2550.

   Did you find the solution? Yes/No

2) Use any of these numbers and '+' operation to get "686". You can use each number only once.

101	81	51
121	41	91
61	111	71

   Did you find the solution? Yes/No

3) Find 3 different whole numbers a, b, and c such that $a^3 + b^3 = c^3$

   Did you find the solution? Yes/No

4) Use any of these numbers and '+' operation to get "72". You can use each number only once.

13	19	21
22	39	6
17	9	11

Did you find the solution? Yes/No

5) Use any of these numbers and '+' operation to get to "22". You can use each number only once.

2.1	13.2	9.8
6.5	11	3.2
12.1	7.6	10.9

Did you find the solution? Yes/No

Survey:

1. How many questions on average do you think men got right?

2. How many questions on average do you think women got right?

3. Gender:

Female Male Other

4. Age:

5. What kind of school did you attend for high school?

Public Private Neither

6. Highest level of education achieved:

No High School High School/GED Associates

Bachelors Post Grad

7. How fiscally conservative or liberal are you on a scale from 1-10, 1 being most liberal and 10 most conservative:

1 2 3 4 5 6 7 8 9 10

8. How socially conservative or liberal are you on a scale from 1-10, 1 being most liberal and 10 most conservative:

1 2 3 4 5 6 7 8 9 10

9. How religious was your upbringing on a scale from 1-10, 1 being not at all to 10 being very religious:

1 2 3 4 5 6 7 8 9 10

10. How religious are you now on a scale from 1-10, 1 being not at all to 10 being very religious:

1 2 3 4 5 6 7 8 9 10

11. How self-confident are you on a scale from 1- 10, 1 being not at all to 10 being extremely confident

1 2 3 4 5 6 7 8 9 10

12. Household Income Level:

Below 50,000 a year 50,000-150,000 a year +150,000 a year

13. What do you think is under taught in public schools?

STEM skills The Arts

14. Race:

White Black Asian Native American Hispanic

15. Do you think more colleges and universities should not require applicants to take the ACT/SAT?

No Yes No Opinion

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